Nocti Business Solutions®
Your Corporate Assessment Provider
www.noctibusiness.com

Experienced Worker Assessment Blueprint

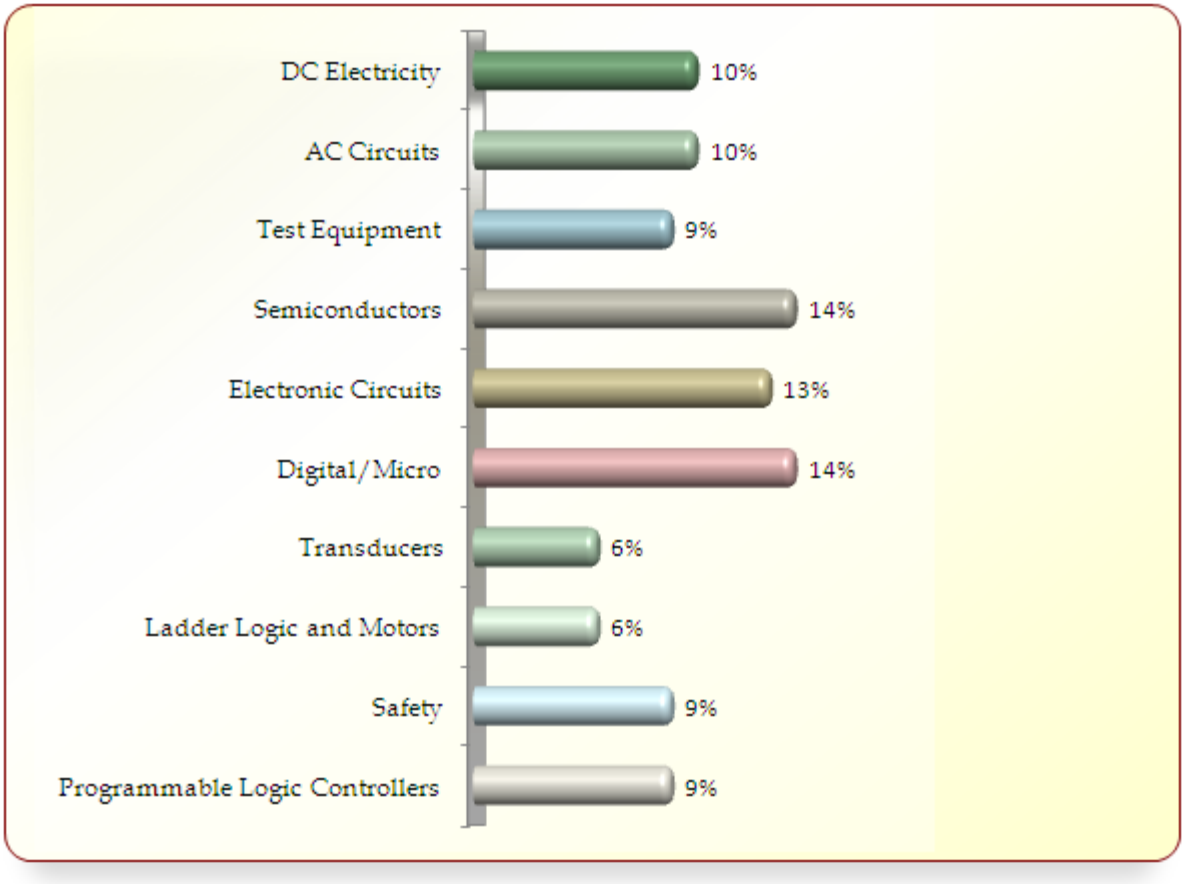
Industrial Electronics

Test Code: 0216 / Version: 01

Written Assessment:

Administration Time: 3 hours
Number of Questions: 192

Areas Covered:



Sample Questions:

Decreasing the capacitance value of a capacitor is accomplished by
A. increasing the thickness of the dielectric
B. increasing the dielectric constant
C. decreasing the spacing between the two plates
D. increasing the area of the plates

In a transistor, as heat increases, leakage currents
A. decrease
B. increase
C. are not affected
D. are equal to forward currents

The primary advantage of a thermistor used as a thermal transducer is its
A. linearity
B. ability to withstand high temperatures
C. fast response to temperature changes
D. ability to convert thermal energy directly to a voltage, eliminating the need for an external voltage source

Electrical hand tools differ from conventional hand tools in that:
A. the metals used are a higher grade than used with conventional hand tools
B. the handles are covered with an insulating material
C. the metals used are tempered to a higher degree of hardness
D. the handles are covered with a conductive material

How can a hand-held programmer be used to troubleshoot a PLC?
A. by adjusting scan time
B. by randomly adjusting output states
C. by stepping through program and verifying inputs and outputs
D. by changing input addresses

Performance Assessment:

Administration Time: 5 hours and 30 minutes
Number of Jobs: 9

Areas Covered:

11% **Oscilloscope Measurements**
Utilization of an oscilloscope, adjust waveform for maximum accuracy, measurement of pulse width, measurement of correct waveform period, determination of frequency and measurement of rise time.

8% **Series RLC Circuits**
Assembly of circuit, adjustment of signal and frequency, determination of power factor and true power at all three frequencies.

6% **Checking a Transistor Amplifier**
Determination of correct circuit values, proper utilization of test equipment, drawing of non-linear waveform, correction of distortion, accurate explanation of reason for non-linearity, and drawing of linear waveform.

9% **Construct and Determine TTL Logic Circuitry**
Proper assembly of circuit, utilization of test equipment, recording of data in truth table, identification of logic function, write Boolean Expression.

11% **Operational Amplifier Characteristics**
Substitution of components, measurements taken at correct locations, proper utilization of equipment, calculation and measurement of voltage gain, measurement of DB gain, recording of waveforms and proper phase relationship between input/output is drawn.

8% **Troubleshooting an IC Counter Circuit**
Proper utilization of equipment, use of logical troubleshooting method, selection of proper replacement part the first time, accurate logic state table, correct measurement of frequency at output C.

8% **Troubleshooting Industrial Timer Circuitry**
Proper utilization of equipment, accurate description of troubleshooting procedures and explanation of findings, list fault(s), repair circuit for proper operation, list components used in circuit, identify mode of operation.

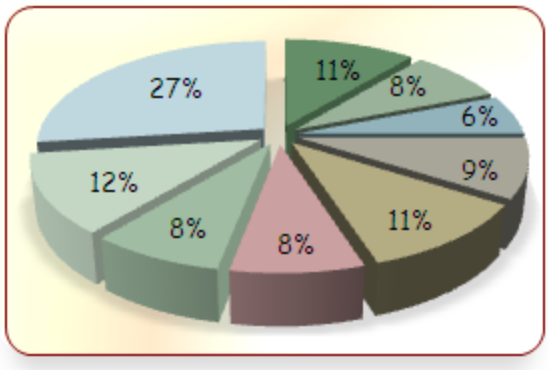
Performance Assessment continued:

12% **Assemble and Test a Thyristor Motor Controller**

Proper assembly of circuit, proper use of test equipment, use of safety procedures, accuracy of voltage and load current.

27% **Programmable Logic Controllers**

Test input/output devices, check input operations, check output operations, compare ladder logic program with manufacturer's specifications, enter ladder logic program, put in run mode and check for proper operation of PLC.



Sample Job: Oscilloscope Measurements

Estimated Job Time: 30 minutes

Participant Activity The participant will use an oscillioscope to measure and determine the peak-to-peak voltage, the pulse width, the waveform period and the frequency, and determine the rise time of the waveform. All results will be recorded.